9731: First building completed at Y-12

Building 9731 has a rich history at Y-12. Completed in March 1943, it was the first building completed on the site. It was also the first building where calutrons were installed. There were two Alpha calutrons and two Beta calutrons installed in what was known as the "Pilot Facility." They were initially used to prove the operation of the calutrons and to provide training for the operators. The magnets of those very first calutrons installed at Y-12 are still there today standing like silent sentinels of the Manhattan Project!

These calutrons have a storied past. Being the first production units built and installed at Y-12, they were given a lot of attention. These units were designated "XAX" for the larger alpha-size calutrons and "XBX" for the smaller beta-size units. At the same time the Alpha units were being manufactured by Allis-Chalmers for delivery to Y-12, they also manufactured an "XA" unit for The Radiation Laboratory at Berkley. This unit was used for training the first employees of Tennessee Eastman Company.

Additionally, Tennessee Eastman sent other trainees to operate one of the tanks in the XA unit at the Radiation Laboratory. Over 200 people were sent there during the first few months of Y-12's existence. Much experience was gained in the operation of the Alpha process equipment. Testing of the first General Electric and Westinghouse equipment built for Y-12 was also done out there.

Even with all the people Tennessee Eastman sent to California for training, and using all the available equipment in The Radiation Laboratory around the clock, they were rapidly falling behind in their training schedule. If they were going to have trained workers ready when the huge buildings at Y-12 were completed and the equipment being manufactured for the buildings delivered and installed, something else was needed.

Ground was broken on a building intended to house two Alpha and two Beta calutrons for training purposes on the Y-12 site. Construction was completed on the basic structure of the building in three weeks! Stone and Webster was ready to install the huge XAX magnet and Tennessee Eastman was clamoring for the calutron parts and electrical equipment to bring the first calutron units in Y-12 into operation.

When the XAX units first operated successfully in Building 9731, after only a week of start up effort, Groves was elated. This meant that the Y-12 electromagnetic separation plant was actually functioning. This brought a flurry of activity there as the people who were training in California came back to continue their training.

Much of the research to improve the calutron operations was moved to the "Pilot Facility," as Building 9731 was known. Some of the key individuals who had developed the basic concept at the Radiation Laboratory came to work on the XAX units at Y-12.

When the design for the calutrons to be installed at Y-12 was frozen to enable the construction planning to begin, a second calutron design started immediately being worked. It was called the "Beta" calutron because it was intended to be the second stage of the operation. The Beta calutron design was about one-half the size of the Alpha unit. It used the same operating principles, but had improvements included that had been learned from Lawrence's experiments.

When the Beta units were installed in Building 9731, little did anyone realize the huge future contribution they would make to the medical isotope program. At the time, the only thought was to complete the process of separating the Alpha product that was somewhat higher in concentration of uranium 235 than natural uranium but still far from being what was needed for an atomic bomb. There was also concern for the possible loss of the precious feed material as it would consist of several Alpha runs.

However, the Beta calutron would be able to produce the needed concentration in one pass. So, it was seen as a necessary and urgent next step.

The XAX and XBX calutron magnets still standing in Building 9731 are both identified as Manhattan Project Signature Artifacts by the Department of Energy's Office of History and Heritage Resources.

Building 9731 is also being nominated for Landmark status on the National Registry of Historic Places. It is one of the buildings at Y-12 that will not be demolished and will remain a part of the Manhattan Project, Cold War, Nuclear Medicine and Industrial Stable Isotope history of Y-12.

One of the key individuals at the Radiation Laboratory who came to work at Y-12 was Chauncey Starr. We will look next at his contribution to Y-12.